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METHOD OF APPLYING FOAMED RUBBER
LATEX TO A PERMEABLE BACKING

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This is a continuation-in-part of application Serial No. 85,467, filed April 4, 1949, now abandoned, and relates to a method of applying a foamed latex sponge backing to carpets, rugs, mats and the like.

Heretofore a rubber backing has been generally applied to various kinds of materials by either adhesively securing a preformed sheet of rubber or by treating the base material with rubber dissolved in a solvent so that upon evaporation of the solvent a rubber coating remains. In other cases latex sponge has been obtained as a backing by "blowing up" latex in place.

It is the purpose of this invention to permit the ready application of a foamed latex sponge backing of any desired thickness to any permeable surface so that it becomes an integral part thereof. Another object is to permit such a backing to be supplied economically and quickly without detracting from the intended appearance and use of the material to which it is attached. Other objects will be apparent from the description which follows.

This invention in its simplest application consists of applying a natural or a synthetic latex compound, which has been whipped into a foam, directly to the fabric, leather, paper, or other permeable surface as may be selected and treated as hereinafter described and thereafter drying and curing.

For a better understanding of the detailed description which follows, the following definitions are given of certain terms employed herein:

"Foam latex compound"—any latex compound capable of being foamed, i. e. of having bubbles incorporated therein, and retentive of a sufficient quantity of such bubbles so as to have a cellular or sponge like structure upon setting.

"Foamed latex sponge"—a foamed latex compound after water has ceased to be the external phase.

"Anti-foaming agent"—any material tending to defoam a foamed latex compound by release of bubble entrapped gases upon contact therewith.

A satisfactory foam latex compound that may be employed is as follows:

Parts, dry weight	
Natural latex, centrifuged, 60%-----	100
Sulfur -----	2
Zinc oxide-----	3
Butyl zimate-----	2
Phenyl beta naphthylamine-----	1
Casein -----	0.5
Nacconal NR (a trade name for sodium alkyl aryl sulfonate)-----	0.5
Aquarex D (a trade name for sodium salts of sulfate monesters of a mixture of higher fatty alcohols, chiefly lauryl and myristyl) -----	0.5
2-nitro 2-methyl 1-propanol-----	3.0

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The above compound is whipped into a froth or foam in a planetary type mixer such as a Hobart mixer and is then, in the simplest application of this invention, applied directly to the material by either spraying, spreading or troweling it thereon. Thereafter it may be dried and cured for thirty minutes at 250° F. providing the material with a bonded foamed latex sponge layer.

Equally useful are foams of GR-S latex, neoprene, and other synthetic latices and blends of either natural or synthetic latices or both combined wherein the dispersed phase is capable of producing desirable sponge properties. One or more types of latex may be used to produce a single backing, their selection depending upon the physical characteristics sought in the foam sponge layer, in its bonding surface and in any preliminary paint coat that may be used. The time of setting and the temperatures employed in drying and curing the latices used will depend upon the requirements of each and the properties sought from each.

In most applications a flexible sponge backing will be desired but a rigid sponge backing may also be secured by proper selection of the latex compound.

The tendency of the foamed latex upon coming into contact with the material to which it is applied, is to liquefy at points of contact and the resulting liquid penetrates or soaks into the material and forms an anchorage for the rest of the applied layer of foam. I have found that the degree of liquefaction and penetration into the material is highly important to the bonding value between the material and the foamed latex sponge. Liquefaction is increased by the use of an anti-foaming agent. Penetration is improved by the use of a wetting agent that is not inimical to liquefaction.

I have found that the following materials function as anti-foaming agents in the manner as hereinbefore described by me, when employed in my method of securing a foamed latex sponge backing:

Tributyl phosphate
Di isobutyl carbinol
2-ethyl hexanol
Trimethyl nonyl alcohol
White mineral oil
Pine oil
Naphtha
Kerosene
Paraffin
Candelilla wax
Fatty alcohols
Isobutyl stearate
Glyceryl mono-oleate
Butyl stearate
Propylene glycol laurate